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How Athena SWAN has improved research culture

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'Draw-a-Scientist' studies have been conducted regularly by educational researchers for several decades. Even today, the stereotype of a 'Scientist' as a middle-aged (or older) white male persists. This is a cliché; however, the sad truth is that it retains some resemblance to real life. Although we are getting better at recognizing women and/or ethnicity in science, we are still a long way from achieving equality. The Athena SWAN charter was launched in 2005 in order to help deal with the lack of women in Science, Technology, Engineering, Mathematics and Medicine (STEMM) careers, particularly at higher level roles. In 2015, the Scientific Women's Academic Network (SWAN) application process changed to encompass a much broader remit, in order to tackle all underrepresentation within the HE sector and provide a positive research culture that benefits everyone.

The history of Athena SWAN

Work between The Athena Project and the Scientific Women's Academic Network (SWAN) led to The Athena SWAN charter to advance the representation of women in Science, Technology, Engineering, Mathematics and Medicine (STEMM). With the support of Equality Challenge Unit (now part of Advance HE) and the UK Resource Centre (UKRC), the charter was officially launched at the Institute of Physics on 22 June 2005. Over the past 15 years, membership to the SWAN charter has risen to 164, holding 815 awards between them, including the departments of arts, humanities, business, social sciences and law. The 10 principles of the Athena SWAN charter recognize that work undertaken must address gender equality more broadly and not just barriers to progression that affect women. In our journey within the School of Biochemistry at the University of Bristol, we recognize that our work in creating a positive research culture cannot solely look at gender imbalances, but must also look at the broad range of factors our staff and students encounter.



Good Practice Initiatives

Creating a positive research culture

The recent results from a survey into research culture by Wellcome has revealed a high level of toxicity within higher education. This can take many forms including

bullying and harassment and workload overload, which can lead to an increase in illnesses such as depression and anxiety. The pyramidal nature of career progression means that many staff fall out of research careers as they try to progress. The male dominance at a professorial level shows that it is more likely to be women who are lost from the research career pipeline. The reasons for this are multifactorial, but need to be addressed in order to reset the balance. By incorporating the Athena SWAN principles into our culture, it allows us to create an environment where everyone can reach their full potential.

Visibility of role models

As human beings, we tend to look for people who are similar to us. We seek out people who are like us, who can inspire us and make us have a sense of belonging. There is a strong correlation between women with role models (of any gender!) and women with leadership goals. It is important to have visible role models of women in senior roles in order to raise aspirations and show that success is achievable. Since the Athena SWAN charter has been brought in, the national figure for female professors in biosciences has risen to 23%. On university visit days, visibility of such role models can be very important to prospective students (see Figure 1). Similarly, highlighting female scientists on days like International Women's Day can help to raise aspirations. Equally as important, the School of Nursing and Midwifery, Queen's University, Belfast uses the Athena SWAN principles to develop recruitment strategies to increase the recruitment of men into nursing. Outreach is one way to increase the visibility of role models for pupils within primary and secondary schools. Developing strong links with schools and



Figure 1. Diversity on open days and outreach activities to increase visibility of role models

organizations, for example, Shes4Science (formally Skirting Science), can help pupils from disadvantaged backgrounds or underrepresented groups experience university life and encourage them to continue into higher education.



Figure 2. International Women's Day 2020 event – improving gender equality at the University of Bristol. Dr Caroline McKinnon, Professor Roberta Guerrina, Rebecca Scott (all from the University of Bristol), Zara Nanu (CEO, Gap Square).

Career progression and support

Networking is an important part of career progression in science. Research shows that women are less likely to self-promote themselves and their work, have greater imposter syndrome and have less confidence than their male counterparts. To reduce this, we need to ensure that scientific conferences are a safe and welcoming space for all. The introduction of a Codes of Conduct for attendees at conferences can clearly state the standards of behaviour expected. Supporting researchers by ensuring there is a mixture of genders in seminar series, conference speakers and chairs of sessions is a simple, yet effective way to help career progression. We ourselves organized our first ever female-only seminar series earlier this year. This allows us to support female academics from other institutions, at all career stages, while also introducing them to our school, enabling future collaborations. Recruitment material showing a greater gender balance and diversity, whilst also incorporating Athena SWAN statements, has helped increase the recruitment and promotion of women, for example, in the Department of Biology, York University and the University of Exeter Medical School. The use of a gender decoder for both job adverts and interview questions can ensure the language used is not swayed towards any one gender. Similarly, gender-balanced interview panels and unconscious bias reminders being sent to panel members prior to interviews can help to ensure fair recruitment.

Starting a family, and the potentially associated career break, is one of the reasons stated for women taking longer to progress their careers. We have produced a school-specific Parental Leave booklet. This details what the school will do, above and beyond anything the university has in place, to ensure people returning from Parental Leave are supported on their return to work. This may mean initially relieving people of some duties as they ease themselves into their new work-life routine. A culture of flexible working is one that many institutions can see benefits from, including at the School of Life Sciences at Keele University, where staff can adapt their working hours to fit around family life. Advertizing all vacant positions stating that flexible working can be spoken about with regards to the role helps to appeal to those applicants with caring responsibilities. A variety of leadership programmes, specifically aimed at women, are now being run within universities. These programmes can be invaluable in helping women raise their confidence and become group leaders or take on senior roles they previously would not have accepted, as seen in the School of Biological Sciences, University of Edinburgh.

Gender pay gap

The gender pay gap is a measure of the difference men and women are paid with regards to average earnings.



Figure 3. Bristol Pride and LGBT STEM Day celebrations

The University of Bristol commissioned Dr Alison Perkin, a Senior Research Fellow at Cardiff University, to undertake a study into the gender pay gap within the University of Bristol. The Office of National Statistics says the UK-wide gap currently sits at 17.3%. In January 2020, the university and the Bristol branch of the University and College Union (Bristol UCU) signed a collective agreement outlining the key actions which will be taken to tackle the gender pay gap. This

is the first university within the UK to do so. At 13.7%, the median pay gap between women and men at the University of Bristol is lower than the national average. The university has stated it will eliminate the gender pay gap for professor level $\pm 3\%$ by 2023. Strides made towards gender equality with regards to women have not moved at the same pace for women of colour. There are far fewer women of colour who are professors, and evidence shows that these women are not only subjected to a gender pay gap, but also an ethnicity pay gap. This is another issue that the University of Bristol, at their Improving Gender Equality event, has promised to investigate and take positive steps to eradicate (see Figure 2).

LGBT+ support

Another identified area of inequality relates to members of the LGBT+ (lesbian, gay, bisexual, transgender +) community. Data show that people who are LGBT+ are less likely to continue with careers in science. In 2018, the LGBT STEM (Science, Technology, Engineering and Mathematics) Day was launched. By participating in this, universities can show visible support for members of the LGBT+ community, which sends a powerful message of acceptance, regardless of sexuality (see Figure 3). One of the Athena SWAN principles aims to tackle the discriminatory treatment often experienced by transgender people. In this regard, a pronouns information sheet produced by the Department of Chemistry at the University of York is a superb resource that can be utilized by all.

Working with Athena SWAN has highlighted the issues faced by other disadvantaged groups within STEM, with many institutions now taking positive steps towards eradicating the shortcomings on the basis of ethnicity and disability.

Ethnicity

Student experience whilst in higher education can contribute to an identified Black and minority ethnic (BME) attainment gap. BME (here meaning “Be More Empowered”) success programmes at the University of Birmingham and the University of Bristol aim to enhance the experience and success of undergraduate BAME (Black, Asian and minority ethnic) students. Black Men Talk (BMT) and Black Women Talk (BWT) sessions provide important support for African, Caribbean or mixed heritage students, facilitating discussion of life experiences. The Broken Pipeline report shows that inequality and bias substantially disadvantages Black students with regards to career progression. Over a 3-year period, only 1.2% of the postgraduate studentships awarded by all UKRI research councils went to Black or Black mixed students. This shows a great deal of work remains



Figure 4. BAME in STEM day 2019

to be done within this area, which will be, rightly, scrutinized as part of the Race Equality Charter run by AdvanceHE. Admission of BME students to many degree programmes remains low, and increasing the ethnic diversity of student cohorts should remain a priority as non-homogenous groups bring many advantages with regards to diverse, creative, problem-solving thought (see Figure 4).

Disabilities

'Disability' encompasses a broad spectrum, and, within this, the experiences of individuals also differ. It is essential that the Higher Education Institutions (HEIs) support people with disabilities throughout their studies, work and further career. People with a disability are, again, less likely to progress with a career in science. Charities such as The Lightyear Foundation and I CAN are doing fantastic work to highlight where changes can be made to support people with disabilities within STEMM, allowing for an increase in participation, retention and progression.



lightyear
foundation



Mental health

In the fast-moving pace of modern-day life, it is important to maintain a good work-life balance. Increasing workloads remain an issue for staff working in higher education, as recently seen in the Wellcome Research Culture survey results. Steps must be taken to reduce anxiety and stress levels. The introduction of 'The Balanced Researcher' workshops by Primary Care Health Sciences, Oxford, resulted in significant increases in work-life satisfaction. Open and honest conversations about mental health are essential for society to change. On International Men's Day, we chose to focus on the prevention of male suicide, often a taboo subject, via the documentary 'Steve'. Highlighting World Mental Health Day and Time to Talk Day forges acceptance of mental health disorders, which can significantly help people on a path to recovery (see Figure 5).

Intersectionality

Individuals have identities shaped by different factors, so it is important to note that one size does not fit all and the issues faced by individuals will differ. What helps to promote, for example, white women, may not have the same effect for a woman of colour. The introduction of the Race Equality Charter aims to specifically improve the representation, progression and success of minority ethnic staff and students within higher education. This allows institutions to identify institutional and cultural barriers standing in the way of minority ethnic staff and students and seek to implement solutions.

The future is equal?

Society fails many members in different ways, and real change takes time. Engagement needs to take an intersectional approach, in order to incorporate factors other than gender. This is a continuous process and one that requires many resolutions, depending on the individuals within any particular environment. It also requires support and buy-in from everyone, including those who are not directly affected by the particular issues. As the Athena SWAN charter states, support from senior management is essential. Resources need to be made available, if changes are to be implemented.



Figure 5. Steve Documentary – prevention of male suicide. Pets as Therapy session organized by the School of Biochemistry HR department, University of Bristol in 2019 to improve mental health. Positive feedback from the session included: "Needs to happen more often. Makes me feel more at home. Made me feel de-stressed". "This is amazing. Actually helped me get into work this morning (I'm struggling with mental health and leaving the house). As soon as I heard dogs were here I was straight out the door!"

Some resolutions will work, some will not. The key is to recognize what does not work, adapt these and continue to move forward. The Athena SWAN principles (see Box 1) show that we need to embrace, rather than

discriminate, diversity and uniqueness within STEM and recognize that, by working together, we can evolve a research culture that allows everyone to reach their full potential. ■

Box 1. The 10 principles of the Athena SWAN charter

1. We acknowledge that academia cannot reach its full potential unless it can benefit from the talents of all
2. We commit to advancing gender equality in academia, in particular, addressing the loss of women across the career pipeline and the absence of women from senior academic, professional and support roles
3. We commit to addressing unequal gender representation across academic disciplines and professional and support functions. In this, we recognize disciplinary differences including:
 - a. the relative underrepresentation of women in senior roles in arts, humanities, social sciences, business and law (AHSSBL)
 - b. the particularly high loss rate of women in science, technology, engineering, mathematics and medicine (STEMM)
4. We commit to tackling the gender pay gap
5. We commit to removing the obstacles faced by women, in particular, at major points of career development and progression, including the transition from PhD into a sustainable academic career
6. We commit to addressing the negative consequences of using short-term contracts for the retention and progression of staff in academia, particularly women
7. We commit to tackling the discriminatory treatment often experienced by trans people
8. We acknowledge that advancing gender equality demands commitment and action from all levels of the organization and, in particular, active leadership from those in senior roles
9. We commit to making and mainstreaming sustainable structural and cultural changes to advance gender equality, recognizing that initiatives and actions that support individuals alone will not sufficiently advance equality
10. All individuals have identities shaped by several different factors. We commit to considering the intersection of gender and other factors wherever possible

Further Reading

- Miller et al (2018) The Development of Children's Gender-Science Stereotypes: A Meta-analysis of 5 Decades of U.S Draw-A-Scientist Studies, *Child Dev.* **89**, 1945-1955
- <https://www.ecu.ac.uk/equality-charters/athena-swan/about-athena-swan/>
- <https://wellcome.ac.uk/sites/default/files/what-researchers-think-about-the-culture-they-work-in.pdf>
- <http://www.bristol.ac.uk/media-library/sites/equality/documents/Gender%20Pay%20Gap%20Report%202019.pdf>
- <https://www.bristol.ac.uk/news/2020/january/gender-pay-gap-agreement.html>
- <https://prideinstem.org/lgbtstemday/>
- <https://leadingroutes.org/mdocs-posts/the-broken-pipeline-barriers-to-black-students-accessing-research-council-funding>
- <https://www.ecu.ac.uk/equality-charters/race-equality-charter/race-equality-charter-resources/>
- <https://www.lightyearfoundation.org/what-we-do>



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